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## Giant Right Coronary Aneurysm to Left Ventricular Fistula

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A 59-year-old man was admitted with mild dyspnea on exertion and prior radiographic evidence of cardiac enlargement. His medical history was unremarkable. On physical examination, grade 4 to-and-fro murmur was heard over the left sternal border. ECG showed normal sinus rhythm with left ventricular (LV) hypertrophy. Two-dimensional transthoracic echocardiography in the 3-chamber view showed dilation of the proximal right coronary artery (RCA) (Figure 1A; Movie I). Color Doppler imaging of transthoracic echocardiography in the apical 4-chamber view revealed abnormal turbulent flow originating just beneath the lateral aspect of the mitral annulus at diastole (Figure 1B; Movie II). At selective right coronary angiography with a pigtail catheter, a markedly dilated, tortuous RCA drained into the posterior aspect of the LV through a large fistula (Figure 2; Movie III). Three-dimensional volume-rendering images of enhanced ECG-gated 64-multislice computed tomography showed a hugely enlarged RCA terminating abruptly without distal branching, suggesting an RCA-to-LV fistula (Figure 3).

Coronary artery fistula is a rare congenital anomaly with an incidence of 0.1% to 0.2% in the adult population.<sup>1</sup> Congenital coronary ventricular fistula, especially where the RCA communicates with the LV, is extremely rare, and large

communications represent a hemodynamic burden.<sup>2</sup> Because of the increased blood flow, the involved coronary artery is dilated, tortuous, and often aneurysmal. A large and hemodynamically significant fistula should be closed by surgical ligation.<sup>3</sup> Surgical treatment was suggested for this patient to prevent complications such as spontaneous rupture, heart failure, myocardial ischemia, and thrombotic and embolic events.

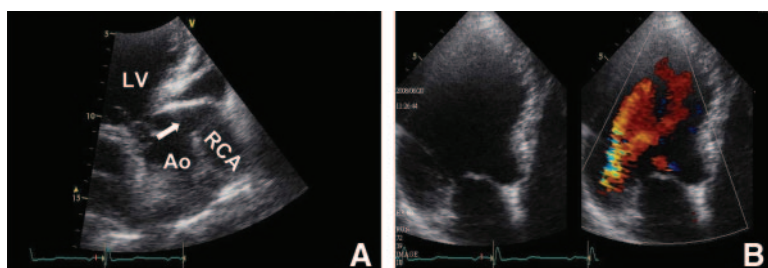
### Disclosures

None.

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KEY WORDS: coronary artery fistula ■ multislice computed tomography



**Figure 1.** Two-dimensional transthoracic echocardiography in the 3-chamber view (A) revealed dilation of the proximal RCA (indicated by arrow). Color Doppler imaging in the apical 4-chamber view (B) demonstrated abnormal turbulent flow originating just beneath the lateral aspect of the mitral annulus.

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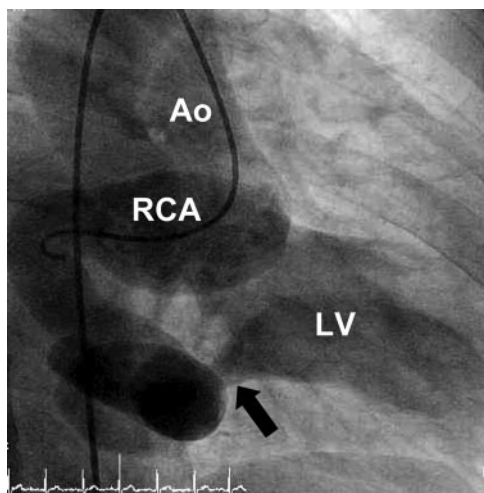
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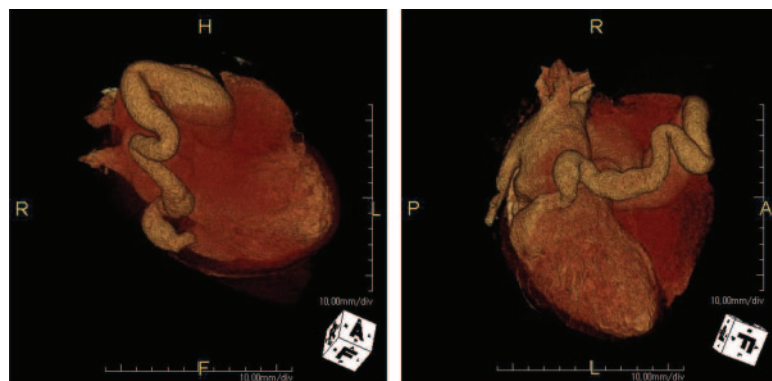
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**Figure 2.** Selective right coronary angiography showed a huge dilated, tortuous RCA draining into the posterior aspect of the LV through a large fistula (indicated by arrow).



**Figure 3.** Three-dimensional volume-rendered CT images provide arbitrary optimal views of the spatial orientation and dimension of the huge dilated, tortuous RCA draining into the posterior aspect of the LV through a large fistula.